ABSTRACT OF THE DISCLOSURE

Dynamic allocation of network resource through the use of a measurement-based estimator is described. Measurements of bandwidth utilization allow a measurement-based estimator to compute the bandwidth requirements of the measured traffic. The use of such an estimator allows provision of differentiated services by adjusting the service-weighting of a queue scheduler and modify the depth and behavior of buffering. By providing a dynamic allocation of resource, the technique makes possible the differentiation of diverse traffic types with a reduction in the complexity and waste of current techniques such as static-allocation or the best-effort service common in the Internet. A novel approach is described to problems arising from the desire to offer diverse and sometimes orthogonal service facilities to a wide variety of traffic types.